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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,490	02/26/2004	Seiji Miura	04120/LH	7996

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EXAMINER

GRANT, ROBERT J

ART UNIT PAPER NUMBER

2838

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/789,490

Applicant(s)

MIURA ET AL.

Examiner

Robert Grant

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterzell (Us 6,194,869) in view of Nagai et al. (US 6,124,700).

As to Claim 8, Peterzell discloses a battery pack with a charge control function, said battery pack comprising: an overdischarge control circuit (Figure 1, element 38) for detecting an overdischarge mode of a secondary battery and supplying an overdischarge detection signal to a discharge control switch (Element 32) when the overdischarge mode is detected (Column 3, lines 33-35); an overcharge control circuit (Element 36) for detecting an overcharge mode of the secondary battery and supplying overcharge detection signal to a charge control switch (element 30) when the overcharge mode is detected (Column 3, lines 29-32); and a charge control circuit for performing charge control of the secondary battery by controlling the charge control switch (Column 3, lines 36-40). Peterzell does not expressly disclose the charging scheme as described. Nagai discloses wherein the charge control circuit includes a constant-current control circuit (Element 13), a constant voltage control circuit (Element

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15), and a primary overvoltage detecting circuit (Element 18); wherein the constant-current control circuit controls (element 13) the charge control switch so as to keep a potential difference across a current-detecting resistor (Element 20) at a predetermined value in order to charge the battery pack at a constant current; wherein the constant voltage control circuit (Element 14, 15 and 21)) detects a battery voltage of the secondary battery and controls the charge control switch so that the battery voltage does not exceed a predetermined voltage in order to charge the battery pack; and wherein the primary overvoltage detecting circuit (element 18) wherein the primary overvoltage detection circuit detects a primary voltage, and the primary over voltage detection circuit turns off the charge control switch and stops charging when the primary voltage is an overvoltage. It would have been obvious to one having ordinary skill in the art at the time of this invention to incorporate the charging device of Nagai with the circuit of Peterzell in order to gain the benefits of Nagai's constant current and constant voltage charging scheme.

As to Claim 2, Peterzell discloses the battery pack according to claim 8, wherein: the discharge control switch includes a discharge control field-effect transistor having a gate serving as a control terminal (element 32, G), and the charge control switch includes a charge control field-effect transistor having a gate serving as a control terminal (element 30, G).

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As to Claim 3, Peterzell discloses the battery pack according to claim 2, wherein: the discharge control field-effect transistor controls an overdischarge control circuit included in the charge protection circuit (Element 28, ODD, 38), and the charge control field-effect transistor controls an overcharge control circuit included in the charge protection circuit and also controls the charge control circuit (Element 28, OCD, 36).

As to Claim 4, Peterzell discloses the battery pack according to claim 3, wherein: a gate voltage of the charge control field-effect transistor is controlled to adjust a drain current thereof so that the one charge control field-effect transistor performs both charge control and overcharge control (column 3, lines 30-32).

As to Claim 5, Peterzell discloses the battery pack according to claim 1, wherein: the charge protection circuit includes a temperature detection unit (Element 18).

1. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterzell in view of Nagai in further view of Mino (US 5,592,070).

As to claim 6, which is dependent upon claim 5, Peterzell discloses all the limitations of claim 5 which this claim is dependent upon. Peterzell does not expressly disclose detecting the temperature of discharge control switch or the charge control switch. Mino teaches the benefits of installing heat detection elements on heat producing elements such as FET's (Column 4, lines 59-67, Column 5, lines 1-4). It would have been obvious to a person having ordinary skill in the art at the time of this

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invention to combine the teachings of Mino, and install temperature detectors on the FET's of Peterzell to monitor the temperature and help prevent thermal runaway.

As to Claim 7, Peterzell in view of Mino discloses the battery pack according to claim 6, wherein: the temperature detection unit includes a thermistor (Peterzell, Figure 1, element 18).

Response to Arguments

2. Applicant's arguments with respect to claims 2-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Grant whose telephone number is 571-272-2727. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG



KARL EASTHOM
SUPERVISORY PATENT EXAMINER